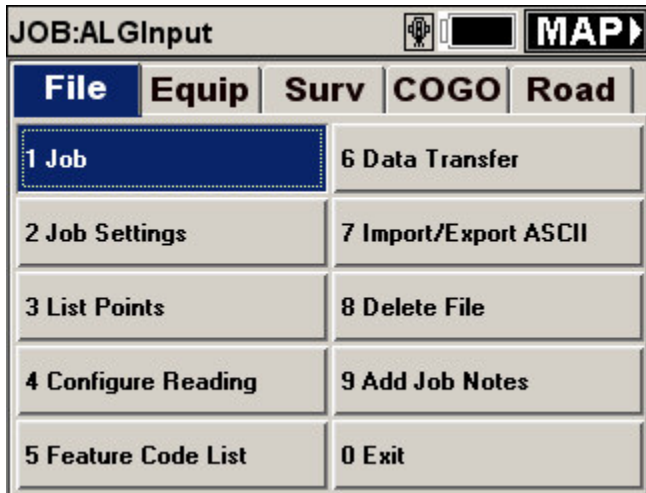


How To Manually Enter an Alignment into SurvCE

This procedure will take you through the steps of manually entering an alignment into the Allegro Data collector running SurvCE software. I will use an alignment print out from CAiCE to get my beginning station, coordinates, etc. This is similar to the way we used to enter alignments into the SDR33 data collectors. By using the Alignment print out, we can “check” our results as we enter the alignment – that is, we can check the calculated coordinates and stationing as it’s shown on the print out.

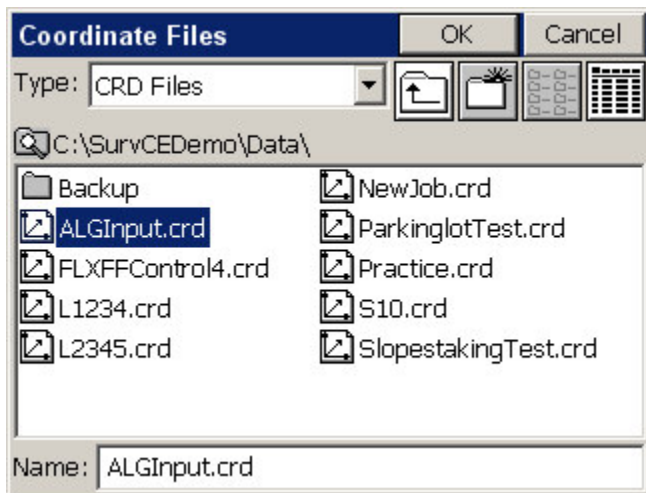
To enter an alignment electronically, we’ll have a different “How to...” on that later on.

From the Main Menu in SurvCE, click on the **File** tab.



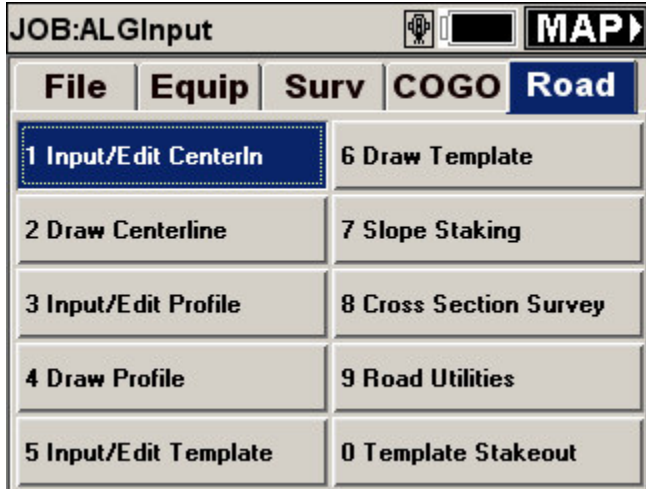
Next, click on **1 Job** to select a job or create a new one. It will open the *Coordinate Files* dialog box as shown below. If it is a new Job, simply enter it in the **Name** box.

If it’s an existing job like I will use here, Left mouse click once to highlight it. The file will show up in the **Name:** box. The File I am using is shown below. Once you’ve chosen the file you want, Click **OK**. If the *Job Settings* dialog box opens, verify the correct inputs and click **OK**.



How To Manually Enter an Alignment into SurvCE

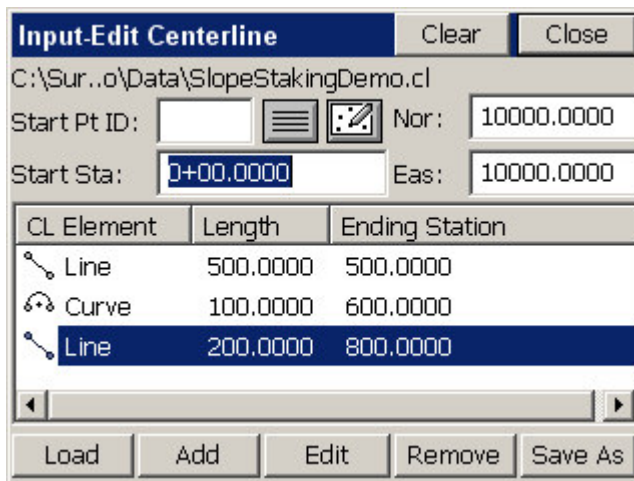
SurvCE will take you back to the Main Menu. Now, click on the **Road** tab.



The image shows the main menu of SurvCE. At the top, it says "JOB:ALGInput" and has a "MAP" button. Below this is a row of tabs: "File", "Equip", "Surv", "COGO", and "Road". The "Road" tab is highlighted. Below the tabs is a grid of buttons:

1 Input/Edit Centerline	6 Draw Template
2 Draw Centerline	7 Slope Staking
3 Input/Edit Profile	8 Cross Section Survey
4 Draw Profile	9 Road Utilities
5 Input/Edit Template	0 Template Stakeout

Click on **1 Input/Edit Centerline**. This will open up the *Input-Edit Centerline* dialog box shown below. The last centerline that was entered will show up. To enter a new centerline, click **Clear**. Or, to add or edit the existing one, click the appropriate tab. To edit a portion of the alignment, highlight the **CL Element** you want to change and then click, **Edit**.



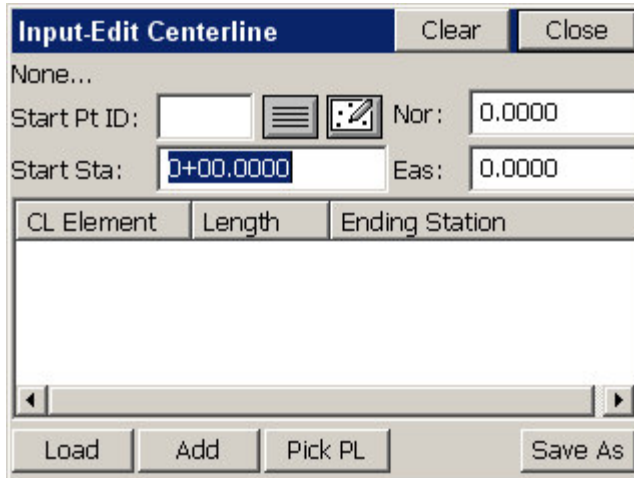
The image shows the "Input-Edit Centerline" dialog box. It has a title bar with "Input-Edit Centerline", "Clear", and "Close" buttons. Below the title bar is a text field showing the file path "C:\Sur...o\Data\SlopeStakingDemo.cl". There are two rows of input fields: "Start Pt ID:" with a list icon and a "Nor:" field with the value "10000.0000"; and "Start Sta:" with the value "0+00.0000" and "Eas:" with the value "10000.0000". Below these is a table with three columns: "CL Element", "Length", and "Ending Station".

CL Element	Length	Ending Station
Line	500.0000	500.0000
Curve	100.0000	600.0000
Line	200.0000	800.0000

Below the table is a horizontal scrollbar. At the bottom are five buttons: "Load", "Add", "Edit", "Remove", and "Save As".

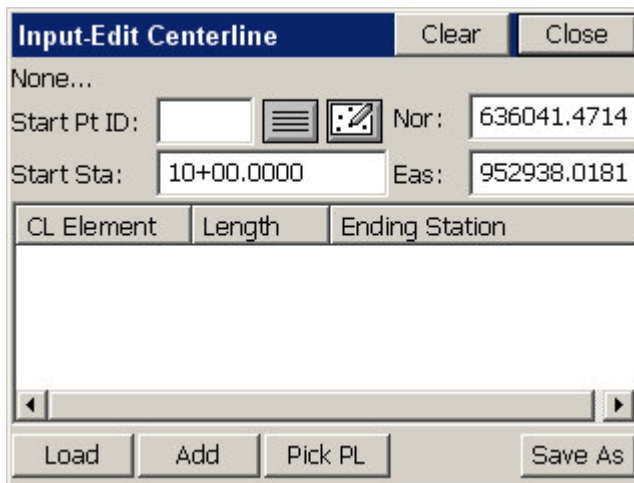
How To Manually Enter an Alignment into SurvCE

By pressing **Clear**, it will zero all the elements in the *Input-Edit Centerline* box as shown.



The screenshot shows the 'Input-Edit Centerline' dialog box. At the top, there are 'Clear' and 'Close' buttons. Below them, the text 'None...' is displayed. The 'Start Pt ID' field is empty, followed by a list icon and a map icon. The 'Nor' field contains '0.0000'. The 'Start Sta' field contains '0+00.0000', and the 'Eas' field contains '0.0000'. Below these fields is a table with three columns: 'CL Element', 'Length', and 'Ending Station'. The table is currently empty. At the bottom, there are four buttons: 'Load', 'Add', 'Pick PL', and 'Save As'.

At this time you'll need the alignment print out. From it, I'll be entering an alignment called, "CTRP6" into the data controller. If you have a Point saved that will begin the alignment, click on the 'List' icon or the Map icon and pick the point you want to use. In this case, I don't have a point defined so I will leave my **Start Pt ID** blank. I'll enter the starting coordinates and stationing from the list, like it shows below.

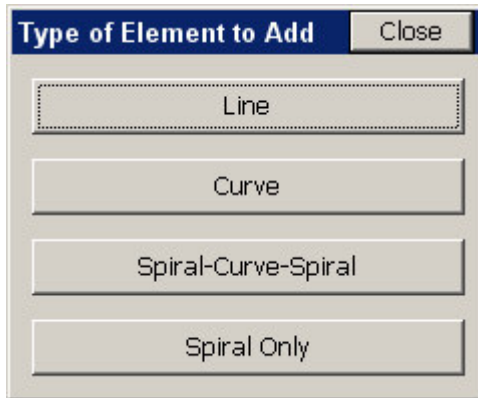


The screenshot shows the 'Input-Edit Centerline' dialog box with data entered. The 'Nor' field now contains '636041.4714'. The 'Start Sta' field contains '10+00.0000', and the 'Eas' field contains '952938.0181'. The table below remains empty. The 'Add' button is highlighted, indicating it is the next step in the process.

From 10+00 - I will just enter the info from the print out.

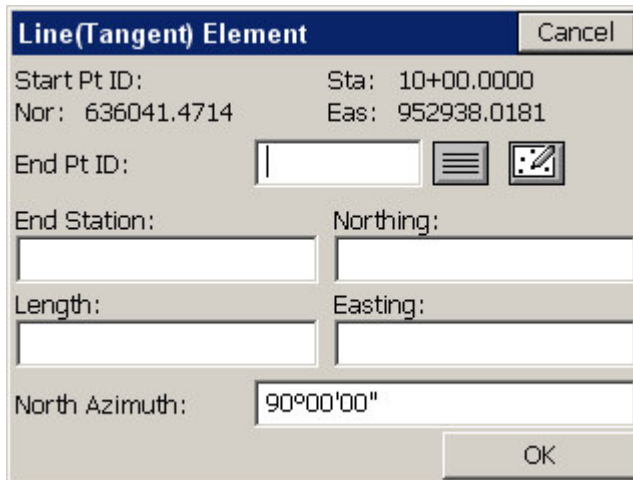
The next section of the alignment is a straight section for 133.399 ft at a bearing of N 81 58 38.0 W. To enter this, click the **Add** tab, which will open up the *Type of Element to Add* dialog box shown below.

How To Manually Enter an Alignment into SurvCE



The dialog box titled "Type of Element to Add" has a "Close" button in the top right corner. It contains four buttons stacked vertically: "Line", "Curve", "Spiral-Curve-Spiral", and "Spiral Only". The "Line" button is highlighted with a dotted border.

Since we're entering a tangent (straight) section we'll click on **Line**. The **Line (Tangent) Element** box will open. See below.



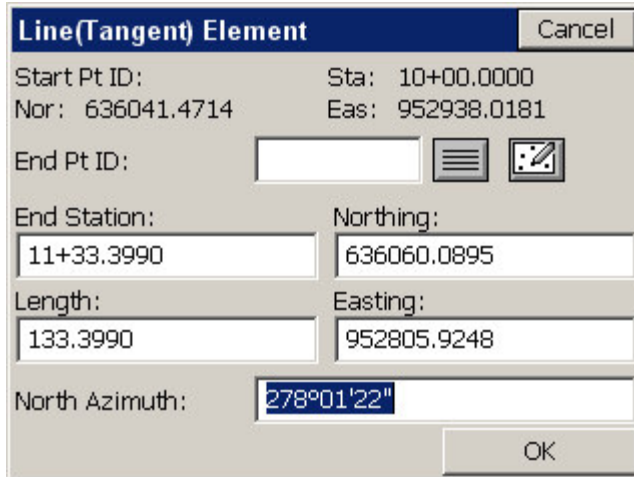
The dialog box titled "Line(Tangent) Element" has a "Cancel" button in the top right corner. It contains the following fields and controls:

- Start Pt ID: Sta: 10+00.0000
- Nor: 636041.4714 Eas: 952938.0181
- End Pt ID: [text box] [List icon] [Map icon]
- End Station: [text box] Northing: [text box]
- Length: [text box] Easting: [text box]
- North Azimuth: 90°00'00" [text box]
- [OK button]

You'll notice our starting Station and coordinates. Double - check your print out to make sure these numbers were entered correctly, before continuing on. If you have a point defined where this portion of the line will end, click on the 'List' icon or the Map icon and pick the point you want to use. I don't have a point, so I'll just enter the **Length** and Bearing. Enter the Bearing as follows: N 81.5838 W, SurvCE will automatically calculate the **North Azimuth** for you. See below.

Notice also that SurvCE calculates your End Station and also the Northing and Easting coordinates of the station that was just created. Now, you can compare the design print out to what is calculated in SurvCE. If the numbers match you can continue by hitting **OK**. If not, **Cancel** to go back and double - check your inputs.

How To Manually Enter an Alignment into SurvCE



The 'Line(Tangent) Element' dialog box is used to define a line segment. It contains the following fields and values:

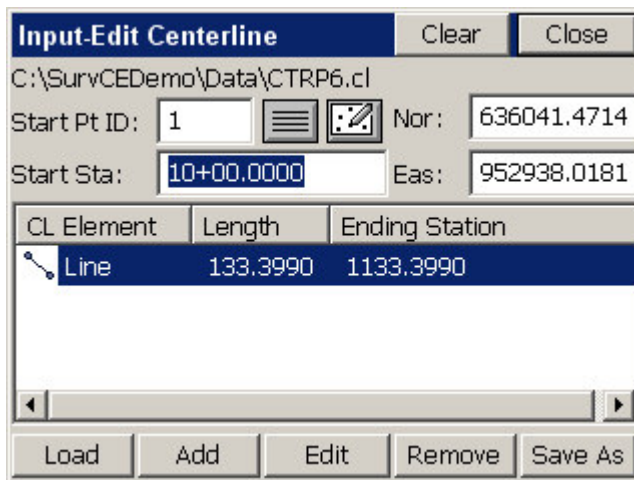
- Start Pt ID:** 10+00.0000
- Nor:** 636041.4714
- Eas:** 952938.0181
- End Pt ID:** (empty)
- End Station:** 11+33.3990
- Northing:** 636060.0895
- Length:** 133.3990
- Easting:** 952805.9248
- North Azimuth:** 278°01'22"

Buttons: Cancel, OK

My numbers matched so I hit **OK**.

This will open the **Input-Edit Centerline** box again.

You can see below, SurvCE added the line section you just entered under the **CL Element**.



The 'Input-Edit Centerline' dialog box shows the current project path and a list of centerline elements. The fields and values are:

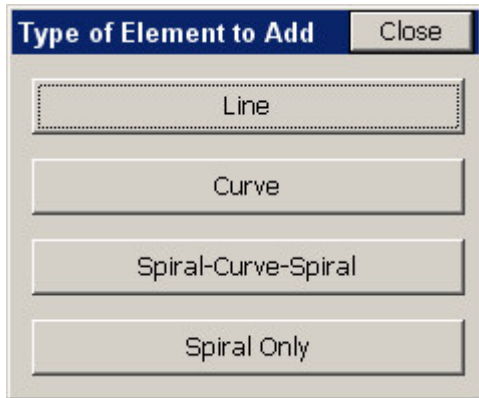
- Project Path:** C:\SurvCEDemo\Data\CTRP6.cl
- Start Pt ID:** 1
- Nor:** 636041.4714
- Start Sta:** 10+00.0000
- Eas:** 952938.0181

CL Element	Length	Ending Station
Line	133.3990	1133.3990

Buttons: Load, Add, Edit, Remove, Save As, Clear, Close

How To Manually Enter an Alignment into SurvCE

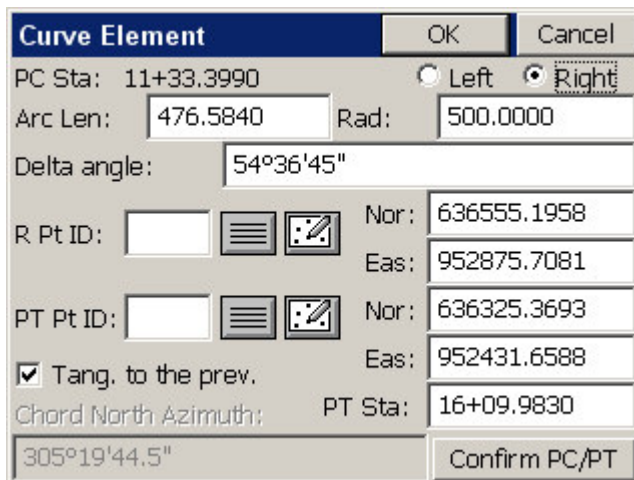
Next we'll have a curve section so we'll hit the **Add** tab again, and click **Curve** at the box below.



The dialog box titled "Type of Element to Add" has a "Close" button in the top right corner. It contains four buttons stacked vertically: "Line", "Curve", "Spiral-Curve-Spiral", and "Spiral Only". The "Curve" button is highlighted with a dashed border.

The **Curve Element** box opens. Your **PC Sta** in this box should match the PC Station that is calculated on your Design printout. Enter your **Arc Len** (476.584) and **Delta angle** (54.3645) from your Design print out. SurvCE will calculate the **Rad** (Radius distance) and the coordinates of the **R** (Radius) point and **PT** (Point of Tangency), as well as the **PT Sta**. You'll also need to specify which direction the curve is, whether it's **Left** or **Right** by toggling the correct direction. Typically you can determine if a curve is left or right from the design print out. Normally a negative (-) delta angle is a Left curve and a positive is a right. See the **Curve Element** box on the next page. Most of the time you want the **Tang. to the prev** checked on.

NOTE: We recommend using only the **Arc Lenth**, **Delta angle** and **Direction**. Most radius distances are rounded and not true and will not calculate the curve data correctly.



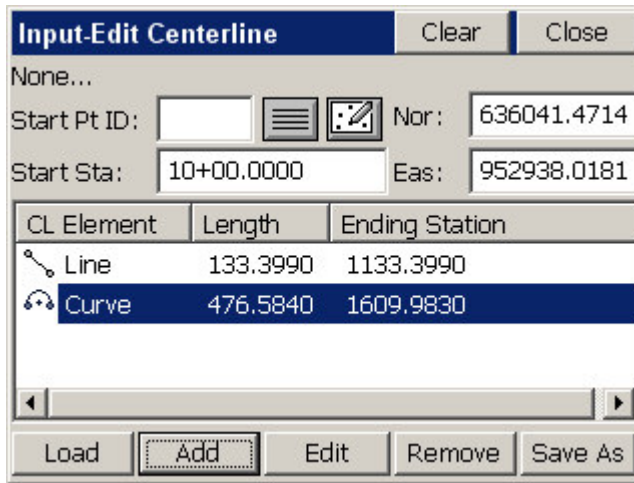
The "Curve Element" dialog box has "OK" and "Cancel" buttons in the top right. It contains the following fields and controls:

- PC Sta: 11+33.3990
- Direction: Radio buttons for "Left" and "Right", with "Right" selected.
- Arc Len: 476.5840
- Rad: 500.0000
- Delta angle: 54°36'45"
- R Pt ID: [empty] [list icon] [plot icon] Nor: 636555.1958 Eas: 952875.7081
- PT Pt ID: [empty] [list icon] [plot icon] Nor: 636325.3693 Eas: 952431.6588
- ☒ Tang. to the prev.
- Chord North Azimuth: 305°19'44.5"
- PT Sta: 16+09.9830
- Confirm PC/PT button

Make sure the coordinates of the **R** point and **PT** point match what is on the design printout. If everything is good click **OK**.

How To Manually Enter an Alignment into SurvCE

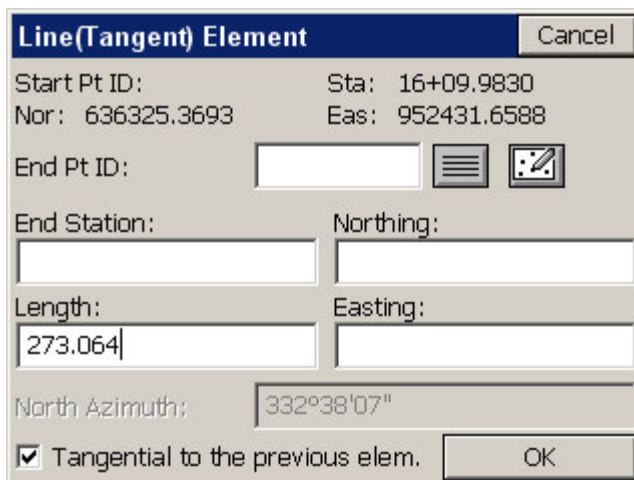
Notice at the ***Input-Edit Centerline*** box below, it lists the **Curve CL Element** we just entered. We have one more tangent section to add to this alignment so we'll click, **Add** again. Then click **Line** when the ***Type of Element to Add*** box opens back up.



The **Input-Edit Centerline** dialog box has a title bar with **Clear** and **Close** buttons. Below the title bar is a **None...** button. The **Start Pt ID:** field is empty, followed by a list icon and a plot icon. The **Nor:** field contains **636041.4714**. The **Start Sta:** field contains **10+00.0000**, and the **Eas:** field contains **952938.0181**. Below these fields is a table with three columns: **CL Element**, **Length**, and **Ending Station**.

CL Element	Length	Ending Station
Line	133.3990	1133.3990
Curve	476.5840	1609.9830

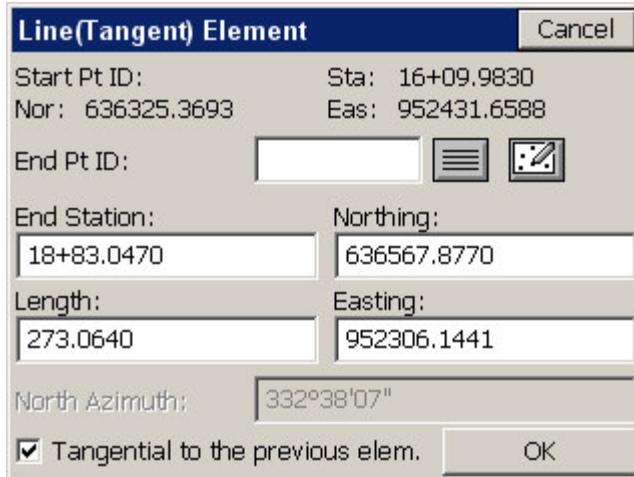
Below the table is a horizontal scrollbar. At the bottom are five buttons: **Load**, **Add** (highlighted with a dashed border), **Edit**, **Remove**, and **Save As**.



The **Line(Tangent) Element** dialog box has a title bar with a **Cancel** button. The **Start Pt ID:** field is empty, and the **Sta:** field contains **16+09.9830**. The **Nor:** field contains **636325.3693**, and the **Eas:** field contains **952431.6588**. The **End Pt ID:** field is empty, followed by a list icon and a plot icon. The **End Station:** field is empty, and the **Northing:** field is empty. The **Length:** field contains **273.064**, and the **Easting:** field is empty. The **North Azimuth:** field contains **332°38'07"**. At the bottom is a checkbox labeled **Tangential to the previous elem.** which is checked, and an **OK** button.

At the box above, I will enter the length (273.064) of my last line (tangent) section. Since my bearing on my Design printout matches the bearing from my Curve data, I have the **Tangential to the previous elem.** toggled on. As soon as I enter the length, SurvCE calcs my **End Station**, and the **Northing and Easting** coordinates. As shown below.

How To Manually Enter an Alignment into SurvCE

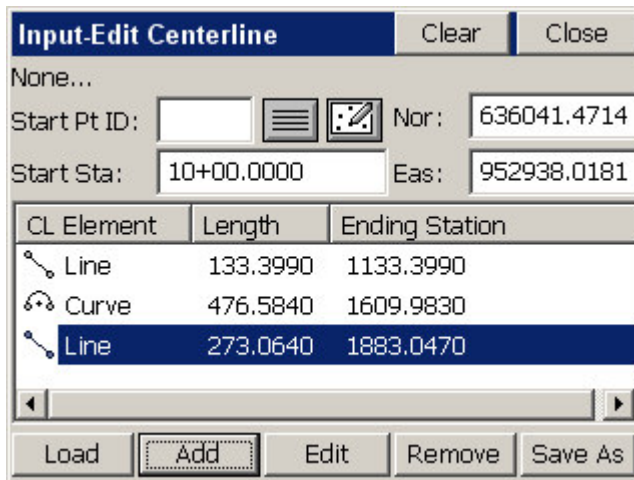


The 'Line(Tangent) Element' dialog box is used for entering alignment data. It includes fields for Start Pt ID, Sta, Nor, Eas, End Pt ID, End Station, Northing, Length, Easting, North Azimuth, and a checkbox for 'Tangential to the previous elem.'.

Field	Value
Start Pt ID:	
Sta:	16+09.9830
Nor:	636325.3693
Eas:	952431.6588
End Pt ID:	
End Station:	18+83.0470
Northing:	636567.8770
Length:	273.0640
Easting:	952306.1441
North Azimuth:	332°38'07"
Tangential to the previous elem.	<input checked="" type="checkbox"/>

I will check my design printout to make sure the **End Station**, and the **Northing and Easting** coordinates match what is calced in the box above. If not, click **Cancel**, and check/edit your inputs. If it matches click **OK**.

The *Input-Edit Centerline* box will open again. You will see the three **CL Elements** we've just entered below.

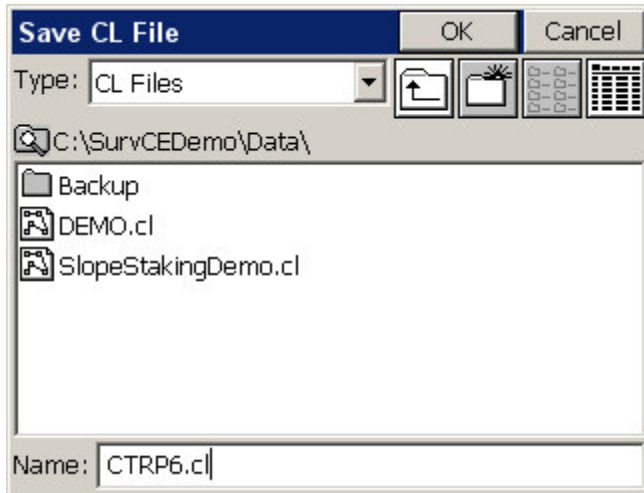


The 'Input-Edit Centerline' dialog box shows a list of CL Elements with columns for CL Element, Length, and Ending Station. It also includes fields for Start Pt ID, Nor, Start Sta, and Eas, and buttons for Load, Add, Edit, Remove, and Save As.

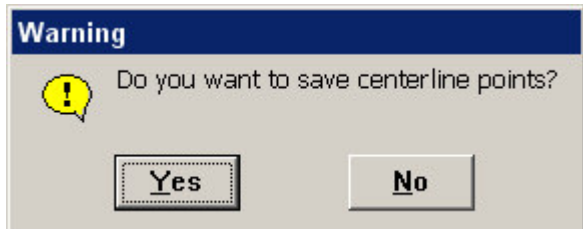
CL Element	Length	Ending Station
Line	133.3990	1133.3990
Curve	476.5840	1609.9830
Line	273.0640	1883.0470

Since we've completed entering our new alignment, we **MUST** click **Save As** to enter a name for this alignment and save it as a centerline file. The **Save CL File** dialog box will open. For the **Name**: I typed in "*CTRP6.cl*" Once you have the name entered click **OK**.

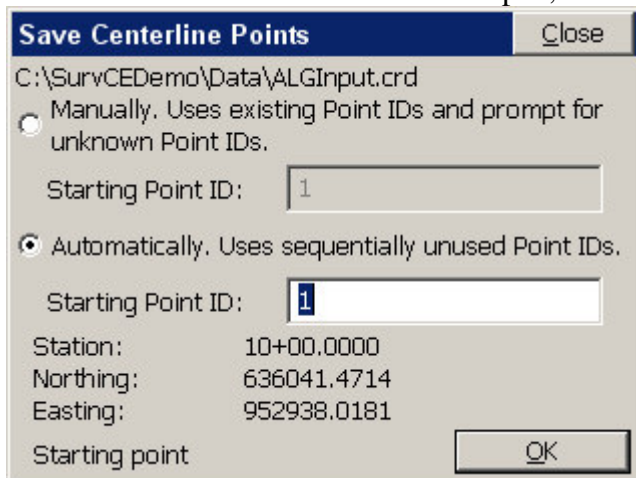
How To Manually Enter an Alignment into SurvCE



You will then get the following **Warning** box. Click **Yes** or **No**, depending if you want to save the centerline points or not?? For this procedure, I'll click **Yes**.



The **Save Centerline Points** box will open, shown below.



This dialog box choices are the user's preference. For this procedure I'll have it Automatically save the points starting with number 1, as you can see above. Click **OK**. It will save the points and the alignment.

To switch between different centerlines, click **Load** and highlight the ".cl" (centerline) file you want to open - then click **OK** in the **Open CL File** dialog box. This will enter all the **CL Elements** for the centerline you have chosen. Click **Close**. That is it!!

How To Manually Enter an Alignment into SurvCE

NOTES: